



LIFE STOPVESPA Project: control of *Vespa velutina* in Italy

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LIFE STOPVESPA (LIFE14 NAT/IT/001128 STOPVESPA "Spatial containment of *Vespa velutina* in Italy and establishment of an Early Warning and Rapid Response System") is an European project financed by the LIFE programme of the European Commission from August 2015 to July 2019. The project has grouped Universities, Associations, Beekeepers and Citizens with the aim to contain the spread of *Vespa velutina* in Italy, an invasive alien species that causes serious damage to beekeeping and biodiversity.



The **actions of the project** allowed to collect and process information on the presence of the Asian yellow-legged hornet and its **impacts on honey bees and other pollinators**, to evaluate **pathways and drivers of introduction**, to develop **new monitoring techniques**, to develop an **early warning and rapid response system**, to define **guidelines for the destruction of colonial nests**, to **destroy more than 2,000 nests**, to produce **educational material**.

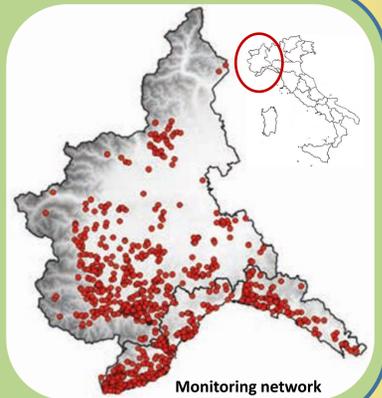


www.vespavelutina.eu

Monitoring network developed by the LIFE STOPVESPA project in Liguria and Piedmont with the involvement of beekeepers Associations.



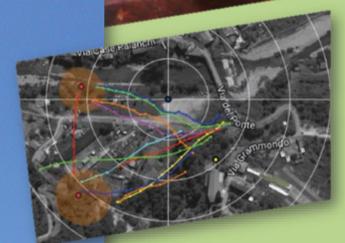
Results of the control activity for the period 2015 - 2018
• LOCATED NESTS: 2205
• NESTS DESTROYED BY LIFE STOPVESPA: 1871
• IN 2018, 98% OF THE REPORTED NESTS HAVE BEEN DIRECTLY DESTROYED BY THE LIFE STOPVESPA PROJECT



The project has worked closely with local and national institutions and with beekeeper associations ensuring the activation of a monitoring network and emergency plans.

The Department of Electronics and Telecommunications of the Polytechnic University of Turin has developed a **harmonic radar to track the hornets flying back to their nests so as to detect them**. The radar has been used in 2018 for the control of *V. velutina* diffusion in Italy, but it could find use also in several other fields of entomological research and pest management.

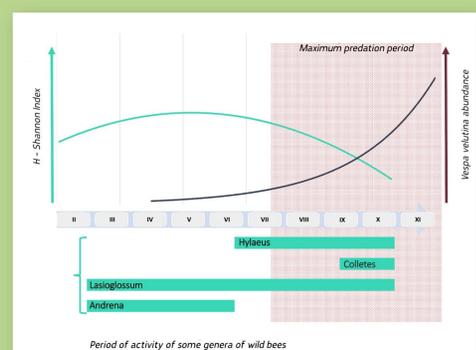
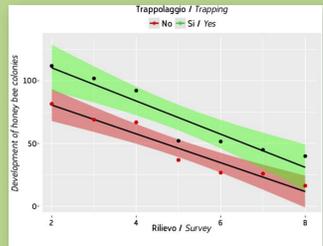
The radar emits a series of short pulses at a given frequency, which are then retransmitted at double frequency (for this reason it is called "harmonic") by the tag fixed on the thorax of the hornets.



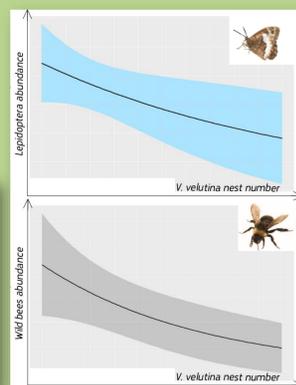
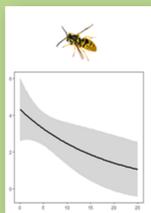
Year	Tracking distance
2015	125 m
2016	150 m
2017	500 m
2018	500 m

The intense predatory activity of *V. velutina* towards honey bees can generate a decrease in the strength of the colonies and the subsequent collapse of the family. This primarily generates economic damage to the beekeeping sector, as well as a decrease in the number of bees in the environment resulting in a decline in the ecosystem pollination service. In the apiaries where no countermeasures were undertaken to limit the impacts of *V. velutina*, an average loss of 18% of honey bee was quantified.

The size of honey bee colonies decreases naturally from summer to autumn, however the bee colonies were larger in the apiaries where *V. velutina* queens spring trapping was performed (green) rather than in the apiaries where the spring trapping activity (red) was not performed.



25 species of wild bees not previously reported in Liguria region and one new species for Italy (*Andrena asperima*) were found. We identified which wild bee genera may be more endangered because of the overlap between their flight period and high *V. velutina* predation.



Asian yellow-legged hornet nest density clearly affects insect communities, generating significant drop in European hornet, wild bees and diurnal butterflies abundances.

The LIFE STOPVESPA project has worked to raise awareness and involve the largest number of beekeepers and citizens, promoting and taking part in many events: meetings with beekeepers, workshops, environmental education meetings for schools, meetings with stakeholders, conferences at a national and international level.

